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NOTES ON THE SPECIES OF BUPRESTIDÆ FOUND IN THE UNITED STATES.

BY G. R. CROTCH, M.A., CANTAB.

Since the revision of this family, by Dr. Leconte, appeared in 1859, considerable changes have become necessary, both by the accretion of new material, and by the more exact determination of Gory's species. Dr. Leconte took with him on his recent visit to Europe types of all his species; these were carefully compared by himself and others, so that we now have a probably accurate idea of the species that Gory intended to represent. This synonymy has been embodied in the present paper, together with the results of a detailed examination of all the species by myself; which has resulted in the suppression of a certain number as races or even mere varieties. In this I shall probably not be followed by some, and if structural characters that I have overlooked can be pointed out, I shall gladly reverse my decision. The species of *Dicerca* and *Agrilus*, two of the most troublesome genera, have been tabulated out; but it has proved impracticable to construct a similar table for *Chrysobothris* or *Acmæodera.* A certain number of new species have been described from the cabinets of Drs. Leconte and Horn, but the subject is far from being exhausted.

CHALCOPHORA. *C. lacustris*, Lec., seems to me to be no doubt a variety of *C. virginiensis*, from which *C. angulicollis* can only be separated as a race. Similarly the two species formed from *C. liberta* do not appear to me to be entitled to specific rank, having in consideration the great changes liable to occur in sculpture in this family.

C. langeri is certainly only *C. campestris.*

PSILOPTERA. *P. Webbii* has been identified with *P. Drummondi*, Gory; and I cannot see that *P. Woodhousii* differs in any tangible manner from it.

DICERCA.

1. **D. prolongata,** Lec. l. c. p. 194.

This agrees well with the description of *Stenura tenebrica*, Kirby.

It differs from *D. divaricata* by the darker color, and the deeper channel on the thorax; the ♂ also has the emargination of the last segment partly filled up with an obtuse tooth.

2. **D. divaricata** (Say), Lec. p. 195.

3. **D. caudata,** Lec. l. c.

I cannot see that this is anything but a smaller, less developed form of the last.

4. **D. pugionata** (Germ.), Lec. l. c. p. 196.

Very distinct by the bidentate elytra; the ♂ has the last segment emarginate with a central tooth.

5. **D. mutica,** Lec. l. c.

Distinct from any other species by the convex prosternum; the unique ♂ has the last segment with a broad emargination.

6. **D. obscura** (Fab.), Lec. l. c.

7. **D. baltimorensis** (Hbst.), Lec. l. c. p. 197.

This species is founded on a single ♂ which I cannot distinguish from *D. obscura.* The straight sides of the thorax are peculiar to the ♂.

8. **D. soror,** Lec. l. c.

Based on a single ♀, *D. obscura.*

9. **D. lurida** (Fab.), Lec. l. c.

After attentively examining about fifty specimens, I cannot separate this species from *D. obscura.* No character of sculpture is of any importance, and the sexual characters vary within certain limits; thus the emargination in the ♂ has sometimes a short central tooth, and at others is simple, and the ♀ has an acute or truncate tooth in the middle.

10. **D. lepida,** Lec. l. c. p. 198.

Closely allied to *D. obscura,* from which it differs by having the thorax channelled, and the elytra with smooth reliefs.

11. **D. spreta,** ‡ Lec. l. c. p. 198.

This is Gory's *asperata,* according to the types in Mniszech's collection. It has simple ♂ tibiæ, as in *D. lepida,* but differs by the short thorax.

12. **D. asperata,** ‡ Lec. l. c. p. 199.

This is the *D. spreta,* Gory, according to the types. The male intermediate tibiæ are dentate.

13. **D. tenebrosa** (Kirby), Lec. l. c.

This is certainly Kirby's species, although Saunders refers it to *distinguenda*, Lap.; Kirby describes the apex of the abdomen as tridentate, which is not applicable to *D. lacustris*, which Saunders has united with it.

The male intermediate tibiæ are dentate.

14 **D. hilaris**, Lec. l. c. p. 200.

This belongs to the section with the abdomen rounded in the female, and is in fact the ♀ of *D. manca.*

15. **D. lugubris**, Lec. l. c.

Founded on a single ♂; the ♀ has the abdomen rounded, and *D. lacustris*, Lec.

16. **D. chrysea** (Mels.), Lec. l. c.

The ♂ has dentate intermediate tibiæ, and does not differ from *D. tenebrosa* except in color; so that I regard it as a bright southern form.

17. **D. punctulata** (Schh.), Lec. l. c. p. 201.

Distinct by the longer thorax, and elytra with rows of punctures.

18. **D. manca**, Lec. l. c.

This is very close to *D. tuberculata*, but is generally greener; the thorax is not dilated in front, and the elytra are less uneven.

19. **D. tuberculata**, Lap., Lec. l. c.

20. **D. lacustris**, Lec. l. c. p. 202.

This is the ♀ of *D. lugubris*, Lec.

21. **D. bifoveata**, Lec. l. c.

This is a small female of *D. tenebrosa.*

22. **D. crassicollis**, Lec. l. c.

The so-called male is a new species, the ♀ is *D. tenebrosa.*

23. **D. pectorosa**, Lec. l. c. p. 203.

24. **D. Hornii**, sp. n.

Oblong, posteriorly acuminate, cupreous or dull æneous; head rugose; thorax broader than long, sides strongly rounded; middle channelled, the ridges more or less smooth, only slightly elevated, sides not uneven; elytra even, subrugose, with four impressed striæ parallel to the suture, the sides irregularly rugulose, apex produced, suture mucronate. L. .70. California.

♂ intermediate tibiæ with a long narrow tooth near the base, above serrate; last segment with a broad truncate emargination.

♀ Apex of last segment rounded.

♀ Var. apex of last segment tridentate.

25. **D. sexualis,** sp. n.

Very closely allied to *D. tenebrosa*, but the male has the intermediate tibiæ simple, and the prosternum hairy; the female has the apex of the abdomen rounded; the elytral reliefs are higher, smoother, and longer, so that the appearance is different. L. .68. California, Oregon.

From *D. lugubris* which it resembles in the ♀, the strong sculpture at once separates it.

26. **D. californica,** sp. n.

So closely allied to *D. tenebrosa*, that I can only separate the ♂s, which have the tibiæ simple, and the prosternum not pilose. L. .65. California.

Dicerca Lecontii, Gory, unknown formerly to Leconte, will now come in the new genus *Trachykele*, Mars., which is based on *T. Blondeli* [Abeille ii. 150] found at Paris, but which appears to be N. American. The elytra of this species are now before me, and do not present extreme differences from those of *T. Lecontii*, of which it may be a large specimen.

DICERCA, Esch.

A. Body elongate, elytra produced at tip into a prolonged mucro; intermediate tibiæ of ♂ dentate.

B. Elytral mucro simple.

C. Thorax with two evident discoidal ridges. *prolongata.*

Cc. Thorax with scarcely visible ridges, brilliant æneous. *divaricata.*

Bb. Elytral mucro bidentate. *pugionata.*

Aa. Apex of elytra not much produced, bidentate.

B. Thorax and elytra uniform without elevated smooth ridges. *obscura.*

Bb. Thorax and elytra uneven.

C. ♂ intermediate tibiæ dentate, front carinate. *spreta*, Lap.

Cc. ♂ tibiæ simple.

D. Thorax broader than long, dilated in front. *asperata*, Lap.

Dd. Thorax longer than broad. *lepida.*

Aaa. Apex of elytra not produced, entire.
B. Last ventral segment not bicostate.
C. ♀ last segment tridentate.
D. ♂ intermediate tibiæ dentate. *tenebrosa.*
Dd. ♂ tibiæ simple. *californica.*
Cc. ♀ last segment rounded.
D. Elytra irregularly tuberculate.
E. Greenish, thorax not very uneven. *hilaris.*
Ee. æneous, thorax dilated in front strongly costate. *tuberculata.*
Dd. Elytra with traces of rows of punctures.
E. Thorax hardly dilated, discoidal costæ straight, approximate. *punctulata.*
Ee. Thorax dilated in front, costæ more distinct. } *lugubris.* *sexualis.*
Bb. Last ventral segment bicostate, ♂ apex truncate. *pectorosa.*
*A*4. Apex of elytra slightly produced, sutural angle mucronate.
* Prosternum sulcate. *Hornii.*
** Prosternum convex. *mutica.*

Poecilonota. P. erecta, Gory, is merely *P. cyanipes*, Say.

Buprestis. Linnæus' name should be kept for this division of the genus containing *A. rustica.*

B. fasciata, 6-*plagiata*, and *Langii* should be placed in the second group with the ♂ tibiæ simple, and in my opinion must form one species; at any rate *B. fasciata* and *B.* 6-*plagiata* are sexes, while *B. Langii* differs a little in general form, but in no definite way. Leconte's group above is most troublesome, and further observations are still necessary to settle the species. In *B. lineata* and *B. consularis* the prosternum is more or less yellow, and the elytra bidentate and in the others truncate; *B. læviventris* has a less strongly punctate abdomen, though I do not lay great stress on this; *B. alternans*=*Nuttalli;* and all the immaculate species certainly seem to me to form one species under the name *B. maculiventris*, Say. The species allied to *B. striata* are equally unsatisfactory. *B. radians*=*lauta* ♂, which is known from *B. striata* by the smooth costæ; but all transitions occur between costate and striate examples, as in *B. maculiventris. B. adjecta* seems to occur with the elytra truncate also, and one or two new intermediate species exist in cabinet.

Cinyra erythopa is recognized as exotic.

Xenorhipis Brendeli, Lec., will have to be added here.

Melanophila opaca is, I consider, a unicolorous specimen of *M. notata.*

M. Drummondi and *M. fulvosignata* are usually very distinct, but some specimens from Michigan are very intermediate in sculpture.

M. prasina, Lec.

This name being preoccupied is changed by Leconte in the "List" to *M. gentilis.*

ANTHAXIA.

After carefully comparing all the six species of Leconte's group A., I am unable to separate any of them specifically; the glabrous head of *A. inornata* is merely individual, and probably abraded.

The sexual differences are very slight, and consist merely of a more concave prosternum in the male.

A. subænea, Lec. l. c. p. 216.

This I take to be the ♀ of *A. viridifrons*, Gory.

A. quercata. (Fab.), Lec. l. c. p. 217.

This in like manner is the ♀ *A. cuneiformis*, Gory.

POLYCESTA.

P. elata, *cavata*, *californica*, and *obtusa* appear to form one variable species; *P. obtusa* is indeed a very small, probably abnormal specimen. *P. velasco* is very distinct by its short subscutellar costa.

Ptosima, gibbicollis, Say (*luctuosa* auct.).

Say's name not being now preoccupied, it must be employed for this species.

ACMÆODERA.

Several new species have been added to the list, and four or five remain undescribed, but I am entirely unable to discover any characters except the variable ones of color, sculpture, and form; so that the limits of species appear to be merely opinionative.

Leconte's groups based on the abdominal crest are not very safe, certainly *A. texana* has a well-marked crest, and must come next to *A. pulchella*, of which it is hardly more than a variety.

A. culta [*tubulus*, Fab.], *A. subbalteata*, and *A. bivittata*, Horn, are distinct by the very short setose white erect pubescence; *A. gibbula* is very distinct by the prosternum produced and truncate in front; this is also somewhat the case with *A. comata; A. guttifera* is also very distinct by the last three segments of the abdomen being closely and densely punctate.

CHRYSOBOTHRIS.

This genus, no less than the last, is a trouble to students, but here the sexual characters may be brought in satisfactorily. *C. soror*, *Leseuri*, *obscura*, *semisculpta*, and *misella* seem to me all referable to the protean *C. femorata*. *C. calcarata*, *C. cuprascens*, and *C. contigua* form a little group with the ♂ tibiæ dentate within. *C. texana* resembles these in sculpture, but has the ♂ tibiæ as in *C. dentipes*. *C. californica* only differs from *C. dentipes* by the larger size and hairy prosternum in the male; *C. vulcanica* resembles *C. trinervia* very closely, and may be only a large female of it. *C. debilis* and *disjuncta* do not appear to me separable. *C. deleta* has the eyes more widely separated on the vertex. *C. analis* I refer as a variety to *C.* 6-*signata*. *C. Harrisi* and *C. æneola* are distinct by the eyes much less approximate. *C. purpurata*, Bland, is a color variety of *C. æneola*.

AGRILUS, Meg.

The somewhat numerous species of this genus are difficult to determine with accuracy; if, however, they were collected with care, and the sexes carefully determined, the labor would be much reduced. There are three or four species in collections which I have not described for want of sufficient material. The characters are not entirely similar to the European species, especially the sexual ones, which here consist of a hairy prosternum and front, and a more or less distinct channel on the first two segments of the abdomen. These segments are connate, but the suture is visible at the side in one or two species. The dorsal surface of the abdomen varies remarkably in the species, and might very possibly afford good characters; I have only used it for the keel on the last segment, which occasionally projects. The claws are bifid in some European species, but not in any American ones that I have seen; nevertheless they differ importantly, as pointed out by Leconte in his paper.

Agrilus.

Aa. Claws with the appendices contiguous.
Ba. Scutellum not carinate.
Ca. Hind angles of the thorax not carinate. *fuscipennis.*
Cb. Hind angles carinate. *arcuatus.*
Bb. Scutellum carinate.
Ca. Pygidium with an elevated carina produced behind.
Da. ♂ abdomen impressed. *ruficollis.*
Db. ♂ abdomen simple, elytra bicostate. *difficilis.*
Cb. Pygidium not carinate.
Da. ♂ segments 1–2 impressed. L. .12–.18. *otiosus.*
Db. ♂ segments simple. L. .26–.32. *torquatus.* *fulgens.*
Ab. Claws with the appendices distant.
Ba. Scutellum carinate.
Ca. Thorax and head coarsely punctate, ♂ simple. *Walsinghami.*
Cb. Thorax and head rugulose.
Da. Pygidium with a projecting carina.
Ea. Sides of thorax pubescent.
Fa. Elytra with pubescent vittæ or spots. *bilineatus.* *granarius.* *subfasciatus.*
Fb. Elytra blue-green. *acutipennis.*
Fc. Elytra dull black. *vittatocollis.*
Eb. Thorax and elytra uniformly and very sparingly pubescent.
Fa. Green, finely granulate. *torpidus.* *anxius.*
Fb. Cupreous, coarsely granulate, thorax foveate. *macer.*
Db. Pygidium simple.
Ea. Elytra with patches of pubescence.
Fa. Hind angles of thorax carinate. *texana.* *fallax.* *interruptus.*
Fb. Hind angles not carinate. *subcinctus.*
Eb. Elytra uniform.
Fa. Head deeply sulcate, ♂ hardly impressed. *addendus.*
Fb. Head at most impressed.
Ga. ♂ segments impressed. *egenus.* *lacustris.* *imbellis.* *floridana.* *pubiventris.*
Gb. ♂ segments simple. *plumbeus.* *politus.*

Bb. Scutellum not carinate.	
Ca. Elytra entire.	*muticus.*
Cb. Elytra serrate at apex.	
Da. Elytra with pubescent spots.	*Couesii.*
Db. Head deeply sulcate.	*pulchellus.*
Dc. Head plane, elytra cupreous.	*obolinus.*

A. fuscipennis, Gory, Lec.

Elytra hardly denticulate at the apex, ♂ with the abdomen simple, prosternum very hairy, thorax with the hind angles not carinate, scutellum not carinate.

A. arcuatus (Say), Lec.

Prosternum sinuate in front, scutellum not carinate. I have not seen the male.

A. ruficollis (Fab.), Lec.

Very like the preceding, but distinct by the carinate thoracic angles, and the dorsal carina of the abdomen, which is acute and prominent; the male has a channel on the 2d segment; prosternum not hairy.

A. torquatus, Lec.

♂ abdomen not impressed, prosternum hairy.

A. fulgens, Lec.

♂ 1st segment slightly impressed at its apex, prosternum hairy.

A. obliquus, Lec.

This is founded on a single ♀, which I am disposed to refer to *A. fulgens.*

A. otiosus (Say), Lec.

♂ with segments 1–2 impressed, prosternum pilose, front opaque green, pilose. *A. geminatus*, Say, belongs here, from his description.

A. defectus, Lec.

This is founded on rather large females of *A. otiosus.*

A. pusillus, Lec.

Founded on one female specimen which I cannot separate from *A. otiosus.*

A. difficilis, Gory, Lec.

Elytra faintly bicostate; prosternum triangularly emarginate in front, dorsal carina acute, projecting; ♂ with the abdomen simple, front and prosternum pubescent.

A. bilineatus (Weber), Lec.

Dorsal carina acute, projecting; ♂ prosternum not pilose; 2d segment channelled.

A. granulatus (Say), Lec.

Dorsal carina acute, projecting; ♂ front and prosternum pubescent.

A. biguttatus, Gory, Lec.

This is evidently identical with the preceding, as is also *A. zemes*, Gory.

A. subfasciatus, || Lec.

♂ with a pubescent fovea on the 1st segment, dorsal carina projecting.

This name has been changed to *A. Lecontii*, by Saunders in his *Catalogus Buprestidarum.*

A. fallax (Say), Lec.

♂ front green, opaque, pubescent, prosternum pilose; 2d segment with a broad pubescent fovea.

A. interruptus, Lec.

Very like the preceding, but the prosternum is sinuate in front.

A. subcinctus, Gory, Lec.

♂ abdomen simple.

A. acutipennis, Mann. *latebrus*, Lap., Lec.

Dorsal carina projecting, 1st ventral suture visible at the sides, ♂ front pubescent, 2d segment deeply impressed.

A. torpidus, Lec.

Prosternum sinuate in front, dorsal carina projecting, ♂ 2d segment with a well-defined unpunctate channel.

A. anxius, Gory, Lec.

Very close to the preceding, but prosternum entire in front; ♂ similar.

A. pulchellus, Bland.

♀. Elongate, above with the head, thorax, scutellum, and suture of the elytra violet-blue, their margins brilliant coppery; antennæ short, stout, the third joint evidently triangular; head very deeply sulcate, rugose, pubescent; thorax rugose, sides and median line pubescent; angles with a faint carina parallel to the sides; scutellum rugose, not carinate; elytra imbricate; body beneath bluish-black, densely clothed with yellowish pubescence. L. .37. Colorado (Leconte).

Claws separate, prosternum not sinuate in front; elytra rounded, slightly serrate, ventral segments with the suture almost apparent.

A. Couesii, Lec.

Elongate, golden-green, head deeply sulcate, but with two oblong tubercles between the eyes; thorax subtransverse, with very deep medial groove rugose at the bottom (the ridges smooth), front angles produced, sides thickly flavo-pubescent, carina strong, curved; scutellum smooth, with a deep punctate fovea occupying the middle; elytra rugose punctate, with a smooth violet dorsal carina, not quite reaching the apex; the sutural groove is pubescent, except two spots, one after the other, before the apex, the outer groove bare and more coarsely punctate, apex acutely serrate; sterna pubescent, abdomen shining, scarcely punctate in the middle, sides with densely pubescent spots. L. .42. Arizona (Coues).

Identified with *A. perlucidus*, Gory, by H. Deyrolle, but only the type could render such identification possible.

Prosternum flat, not depressed behind.

A. texanus, sp. n.

♀. Very closely allied to *A. Couesii*, but coppery above; head with the tubercles more developed, so as to leave a frontal pit; thorax uniformly rugose, carina much fainter, sides not pubescent, scutellum carinate; elytra more sparingly punctate, similarly pubescent. Sides of metasternum and a lateral spot on the third segment only pubescent. L. .38. Texas (Leconte).

A. floridanus, sp. n.

Allied to *A. interruptus*, Lec., but front narrow, deeply sulcate; thorax strongly rugose, carina well marked; elytra not sulcate, but with three pubescent spots, one basal, one before the middle, and at three-fourths near the suture; ventral segments punctulate, last three with lateral pubescence. L. .30. Florida (Horn).

♂. Prosternum hairy, first segment with an elongate pubescent fovea.

A. imbellis, sp. n.

Closely allied to *A. egenus*, but rather broader, entirely uniformly æneous; thorax strongly and regularly rugose, the carina evident, not widely divergent from the margin; elytra hardly grooved longitudinally. L. .21. Florida (Horn).

♂ First and second ventral segments with a pubescent impression, prosternum with long white hairs, front shining, strongly punctate as in the female; differs from *A. egenus* by its male characters.

A. pubiventris, sp. n.

Bright green, sometimes slightly æneous; head flat, thorax longer than broad, uniformly rugose, with a faint medial channel, carinæ not acute, nearly parallel to the sides; elytra uniform, closely imbricate, apex distinctly serrate, under surface shining, ventral segments sparingly rugosely punctulate. L. .24. Texas.

♂ First two segments with a rather deep pubescent channel metasternum and prosternum, also strongly pubescent; front opaque pubescent.

A. addendus, sp. n.

Elongate, subcupreous above, sparsely and shortly pubescent; head rather deeply sulcate, thorax longer than broad, medial impression obsolete, carina acute, long; elytra transversely rugulose, with a shallow sutural impression, pubescence showing a tendency to form a basal and subapical spot; prosternum entire in front. L. .24. Texas (Belfrage).

♂ First two segments with a faint impression, prosternum and front pubescent.

A. Walsinghami, sp. n.

Elongate, cylindrical, bluish-green or cupreous, spotted with white pubescence; front narrow, sulcate, coarsely punctate; thorax subtransverse, deeply channelled in the middle (the ridges nearly smooth) lateral impressions deep, carina obtuse, not defined, surface coarsely punctate, punctures confluent at the sides; scutellum carinate, elytra scabrous, each with two raised costæ, and four pubescent spots; one elongate at the base, two (one before the middle, one towards the apex) between the first two costæ, one a little behind the middle, outside the second costæ; top serrate; sides of pro- and meta-sternum thickly clothed with white pubescence, and a lateral white spot on the sides of segments 2–5. L. .50. Oregon (Walsingham), California (Horn).

♂ abdomen simple, not impressed.

The two connate segments are quite distinct at the sides in this species, which is easily known from all others by the punctate thorax.

A. vittato collis (Rand.), Bost. J.

Elongate, black, opaque, head deeply and broadly sulcate, bright cupreous, thickly clothed with orange pubescence; thorax subtransverse, rugulose, hind angles not carinate, bright cupreous, sides and deep medial channel clothed with orange pubescence; scutellum carinate; elytra closely granulate, opaque; beneath subcupreous, finely and closely punctulate, with very short pubescence; prosternum concave behind, the hind angles acutely elevated. L. .35. Massachusetts.

♂ 1st ventral segment faintly, 2d distinctly impressed; last segment truncate or faintly emarginate.

Dorsal carina strongly projecting.

A. putillus, Say, Tr. Phil. Soc., vi. 162.

Elongate, æneous, shining, head sulcate (but not deeply so); thorax broader than long, sides oblique, middle faintly channelled, angles not carinate; scutellum carinate, elytra broadly grooved along the suture; prosternum deeply sinuate in front, abdominal segments sparingly punctate, pygidium not carinate. L. .14. Canada (Horn).

This agrees very well with Say's description, as pointed out to me by Dr. Horn.

Taphrocerus agriloides, sp. n.

Subelongate, æneous, head very sparingly punctate, with an impressed line on the front; thorax alutaceous, transverse, sides straight, coarsely and sparsely punctate, base with a rounded median lobe; elytra deeply punctate striate, the punctures decreasing towards the apex. L. .14. Texas (Belfrage).

In appearance very like *Agrilus putillus*.

BRACHYS.

B. lugubris, Lec., is the true *B. tessellata*, Fab.; *B. lævicauda* is considered a variety of *B. ovata;* Melshemier's name *ærosa* must be restored to *B. terminans*, ‡ Lap. The Fabrician species being S. American.